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United States
Department of Defense



American Recovery and Reinvestment Act Projects-
Air Force Research Laboratory Projects Need
Improvement

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Acronyms and Abbreviations

ADVENT	Adaptive Versatile Engine Technology
AFRL	Air Force Research Laboratory
DPAP	Defense Procurement and Policy
ESSP	Efficient Small Scale and Power
FAR	Federal Acquisition Regulation
FBO	Federal Business Opportunity
FPDS	Federal Procurement Data System
HEETE	Highly Efficient Embedded Turbine Engine
IDIQ	Indefinite-Delivery, Indefinite-Quantity
NTEET	Near Term Energy-Efficient Technologies Program
OMB	Office of Management and Budget
RDT&E	Research, Development, Test, and Evaluation
RFP	Request for Proposal
UAV	Unmanned Aerial Vehicle
USACE	U. S. Army Corps of Engineers
WRAFB	Warner Robins Air Force Base



INSPECTOR GENERAL
DEPARTMENT OF DEFENSE
400 ARMY NAVY DRIVE
ARLINGTON, VIRGINIA 22202-4704

March 24, 2011

MEMORANDUM FOR UNDER SECRETARY OF DEFENSE (COMPTROLLER)/
CHIEF FINANCIAL OFFICER
ASSISTANT SECRETARY OF THE AIR FORCE
(ACQUISITION)
ASSISTANT SECRETARY OF THE AIR FORCE
(FINANCIAL MANAGEMENT AND COMPTROLLER)
DIRECTOR DEFENSE RESEARCH AND ENGINEERING

SUBJECT: American Recovery and Reinvestment Act Projects—Air Force Research
Laboratory Projects Need Improvement (Report No. D-2011-053)

We are providing this report for information and use. The Air Force properly justified and adequately planned and funded 9 of 10 Air Force Near Term Energy-Efficient Technologies projects. However, the Air Force Research Laboratory could have improved transparency in the process of executing Public Law 111-5, "American Recovery and Reinvestment Act of 2009," February 17, 2009, contract actions. We considered management comments on a draft of this report when preparing the final report.

We received comments from the Executive Director of Air Force Research Laboratory that conformed to the requirements of DoD Directive 7650.3. The comments were responsive; therefore, no further comments are required. As a result of management comments, we deleted draft report Recommendation 1.a and revised and renumbered draft report Recommendation 1.b as Recommendation 1.

We appreciate the courtesies extended to the staff. Please direct questions to me at (703) 604-9201 (DSN 664-9201).

A handwritten signature in blue ink, reading "Richard B. Jolliffe", is positioned above the printed name.

Richard B. Jolliffe
Assistant Inspector General
Acquisition and Contract Management

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Results in Brief: American Recovery and Reinvestment Act Projects—Air Force Research Laboratory Projects Need Improvement

What We Did

We reviewed the planning, funding, and initial execution of 10 Air Force Research Laboratory (AFRL) Near Term Energy-Efficient Technologies (NTEET) program research and development projects, valued at \$38.9 million, out of all Air Force NTEET research and development projects, valued at \$72.9 million. Specifically, we determined whether contracting efforts complied with Public Law 111-5, “American Recovery and Reinvestment Act of 2009,” February 17, 2009, (Recovery Act) requirements, Office of Management and Budget guidance, the Federal Acquisition Regulation, and DoD implementing guidance including the DoD NTEET Program Plan of May 15, 2009.

What We Found

The Air Force properly justified and adequately planned and funded 9 of 10 NTEET projects. In addition, AFRL used modifications and task orders to previously awarded competitive cost-reimbursement contracts and cooperative agreements to award contract actions for the projects. As of March 31, 2010, AFRL awarded 24 contract actions, valued at \$34.8 million, and 2 cooperative agreement actions, valued at \$972,000. However, the Air Force could have improved NTEET project contracting and transparency.

Specifically, AFRL should have:

- posted online notices on 5 contract modifications for 2 NTEET projects,
- provided clarity in the presolicitation notice for 1 NTEET project, and
- informed the public of its intent to use previously competed contracts to perform all AFRL 10 NTEET projects.

The AFRL lack of transparency occurred because of the contracting officers’ inconsistent contract implementation and oversight and the Air Force’s lack of specific Recovery Act implementing procedures. As a result, the Air Force did not achieve the Recovery Act objective of transparency in implementing AFRL NTEET actions.

What We Recommend

We recommend that the AFRL and the Air Force Materiel Command publicly disclose details of the use of existing cost-reimbursement contracts previously competed to perform Recovery Act NTEET projects.

Management Comments and Our Response

Responding for the Commander, the Executive Director, AFRL, agreed with the intent of the recommendation. The Executive Director’s comments are responsive. As a result of management comments and additional audit work, we deleted draft report Recommendation 1.a and revised and renumbered draft Recommendation 1.b as Recommendation 1. No further comments are required.

Recommendations Table

Management	Recommendations Requiring Comment	No Additional Comments Required
Commander, Air Force Research Laboratory		1

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Introduction

Objectives

Our overall objective was to determine whether DoD and its Components planned and implemented Public Law 111-5, “American Recovery and Reinvestment Act of 2009,” February 17, 2009 (Recovery Act), by meeting the requirements in the Recovery Act, Office of Management and Budget (OMB) Memorandum M-09-10, “Initial Implementing Guidance for the American Recovery and Reinvestment Act of 2009,” February 18, 2009, (Recovery Act) and subsequent related guidance. For this audit, we reviewed the planning, funding, and initial execution (contracting) of 10 Near Term Energy-Efficient Technologies (NTEET) program research and development projects to determine whether the Air Force contracting efforts complied with Recovery Act requirements, OMB guidance, Federal Acquisition Regulation (FAR), and DoD implementing guidance. See Appendix A for a discussion of our scope and methodology.

Recovery Act Background

The President signed the Recovery Act into law on February 17, 2009. It is an unprecedented effort to jump-start the economy and create or save jobs.

The purposes of this Act include the following:

- (1) To preserve and create jobs and promote economic recovery.
- (2) To assist those most impacted by the recession.
- (3) To provide investments needed to increase economic efficiency by spurring technological advances in science and health.
- (4) To invest in transportation, environmental protection, and other infrastructure that will provide long-term economic benefits.
- (5) To stabilize State and local government budgets, in order to minimize and avoid reductions in essential services and counterproductive state and local tax increases.

... the heads of Federal departments and agencies shall manage and expend the funds made available in this act so as to achieve the purposes specified...including commencing expenditures and activities as quickly as possible consistent with prudent management.

Recovery Act Requirements

The Recovery Act and implementing OMB guidance require projects to be monitored and reviewed. We grouped these requirements into the following four phases: (1) planning, (2) funding, (3) initial execution, and (4) tracking and reporting. The Recovery Act requires that projects be properly planned to ensure the appropriate use of funds. Review of the funding phase is to ensure the funds were distributed in a prompt, fair, and reasonable manner. Review of the initial execution phase is to ensure that contracts awarded with Recovery Act funds were transparent, competed, and contained specific FAR clauses; that Recovery Act funds were used for authorized purposes; and that instances of fraud, waste, error, and abuse were mitigated. Review of the execution

phase also ensures that program goals were achieved, including specific program outcomes and improved results on broader economic indicators; that projects funded avoided unnecessary delays and cost overruns; and that contractors or recipients of funds reported results. Review of the tracking and reporting phase ensures that the recipients' use of funds was transparent to the public and that benefits of the funds were clearly, accurately, and timely reported.

Recovery Act Contracting Requirements

The Recovery Act establishes transparency and accountability requirements. Federal Acquisition Circular 2005-32, March 31, 2009, provides policies and procedures for the Government-wide implementation of the Recovery Act and guidance on special contract provisions. Federal Acquisition Circular 2005-32 amended the FAR and provided interim rules that made FAR solicitation provisions and contract clauses immediately available for inclusion in contracts for Recovery Act work.

The specific FAR Recovery Act requirements are for:

- buying American construction material,
- protecting contractor whistleblowers,
- publicizing contract actions,
- reporting, and
- giving the Government Accountability Office and agency Inspectors General access to contracting records.

Federal Government organizations meet requirements for Recovery Act contract actions by posting information on the Federal Business Opportunities (FBO) and Federal Procurement Data System (FPDS) Web sites. FAR Subpart 5.7, "Publicizing Requirements Under the American Recovery and Reinvestment Act of 2009," directs contracting officers to use the Government-wide FBO Web site (<http://www.fbo.gov>) to:

- identify the action as funded by the Recovery Act,
- post pre-award notices for orders exceeding \$25,000,
- describe supplies in a clear narrative to the general public, and
- provide rationale for awarding of any contracting actions that were not both fixed-price and competitive.

FBO is the Federal Government's central source of Federal procurement opportunities. FBO is a Web-based portal that allows agency officials to post Federal procurement opportunities and contractors to search and review those opportunities. Agencies also post contract award notices on the FBO Web site. In addition, to provide transparency, FBO has a separate section identifying Recovery Act opportunities and awards.

FPDS is the Federal Government's central source of procurement information. Contracting officers enter information, to include the Treasury Account Symbol, in the FPDS for all Recovery Act contract actions. The Treasury Account Symbol enables FPDS to provide transparency by generating and posting a report containing all Recovery Act contract actions.

OMB Memorandum M-09-15, “Updated Implementing Guidance for the American Recovery and Reinvestment Act of 2009,” April 3, 2009, directed contracting officers to provide a description on the FBO Web site of the supplies and services that is clear and unambiguous to support public transparency. The memorandum required specific posting requirements for modifications as well as orders under task and delivery order contracts. On April 21, 2009, the Office of Defense Procurement and Acquisition Policy (DPAP) issued updated Recovery Act contracting instructions requiring contracting offices to post presolicitation and award notices for modifications or orders under existing contracts. On March 19, 2010, DPAP further revised the guidance to rescind the presolicitation requirement as it related to contract modifications to existing contracts.

FAR Subpart 5.704, “Publicizing-preaward,” directed users to FAR subpart 5.201, which stated that, for acquisitions of supplies and services, the contracting officer must post a notice to the Government Point of Entry system for modifications to an existing contract. However, this section of the FAR was amended in July 2010 to exclude modifications from the presolicitation FBO posting requirement.

FAR Section 6.1, “Full and Open Competition,” describes the steps necessary to keep competition full and open to all sources. Full and open competition includes full and open competition after exclusion of sources, which allows an agency to exclude a particular source(s) when doing so would ultimately be more beneficial to the agency than if competition was full and open. FAR 6.302, “Circumstances Permitting Other Than Full and Open Competition,” allows for sole-source when “only one responsible source and no other supplies or services will satisfy agency requirements.”

OMB Recovery Act Guidance

Criteria for planning and implementing the Recovery Act continue to change as OMB issues additional guidance, and DoD and the Components issue their implementation guidance. OMB has issued 11 memoranda and 1 bulletin to address the implementation of the Recovery Act. See Appendix B for Recovery Act criteria and guidance.

DoD Recovery Act Program Plans

Under the Recovery Act, Congress appropriated approximately \$12 billion to DoD for the following programs: Energy Conservation Investment; Facilities Sustainment, Restoration, and Modernization; Homeowners Assistance; Military Construction; Near Term Energy-Efficient Technologies, and U.S. Army Corps of Engineers (USACE) Civil Works.

The values of the six programs are shown in Table 1.

Table 1. DoD Agency-Wide and Program-Specific Recovery Act Programs

Program	Amount (in millions)
Energy Conservation Investment	\$120
Facilities Sustainment, Restoration, and Modernization	4,260*
Homeowners Assistance	555
Military Construction	2,185
Near Term Energy-Efficient Technologies	300
U.S. Army Corps of Engineers Civil Works	4,600
Total	\$12,020*

*On August 10, 2010, Public Law 111-226, Title III, "Rescissions," rescinded \$260.5 million of funds from DoD Operations and Maintenance Accounts supporting the Recovery Act. This reduced the DoD Recovery Act FSRM amounts to approximately \$4 billion and total DoD Agency-wide and Program-Specific Recovery Act program funding to approximately \$11.76 billion.

The Recovery Act divides the approximately \$12 billion among 32 DoD and USACE line items of appropriations.

Air Force NTEET Program

Under the Recovery Act, Congress appropriated \$300 million for DoD Research, Development, Test, and Evaluation (RDT&E) funds in four appropriation accounts of \$75 million each for Army, Navy, Air Force, and Defense-Wide NTEET Recovery Act projects. Each Military Department and Defense agency submitted RDT&E candidate projects for review in five broad areas:

- fuel optimization for mobility platforms,
- facility energy initiatives,
- operational efficiencies and commercial practices,
- domestic energy supply and distribution, and
- tactical power systems and generators.

See Appendix C for a description of each of these five program funding and functional areas.

Research and Development Contracting

The primary purpose of contracted research and development programs is to advance scientific and technical knowledge and apply that knowledge to achieve agency and national goals. Unlike contracts for other services and supplies, most research and development contracts contain objectives for which the work or method cannot be precisely described in advance. Although the Government prefers to use fixed-price contracts, they do not usually apply in research and development contracting, where specifications and cost estimates are usually not precise enough to permit a fixed-price preference. Therefore, the DoD NTEET Program Plan, May 15, 2009, forecasted a

smaller percentage of fixed-price contracts for anticipated Recovery Act NTEET program projects than for other Recovery Act project categories.

Recovery Act Cooperative Agreements

The Recovery Act establishes transparency and recipient accountability requirements. OMB Memorandum M-09-15, "Updated Implementing Guidance for the American Recovery and Reinvestment Act of 2009," April 3, 2009, provides specific guidance over grants and cooperative agreements in section 5. Section 5(3), "Existing Grants and Cooperative Agreements," states that agencies may consider obligating funds provided under the Recovery Act on an existing grant, including, but not limited to, a continuation or renewal grant. If so, as required by the Recovery Act, funds must be tracked and accounted separately. Requirements include, but are not limited to, report development and submission, accurate and timely data reporting, and special posting requirements to agency Web sites and <http://www.Recovery.gov>. Section 5(9) provides terms and conditions beyond standard practice that must be included in competitive and formula grant agreements under the Recovery Act. Section 1512 of the Recovery Act requires recipients to report on the use of Recovery Act funds. OMB notes that quarterly reporting of nationwide data at <http://www.FederalReporting.gov> would reflect the level of transparency and accountability required by the Recovery Act. The first of these reports were due on October 10, 2009. As of March 31, 2010, AFRL issued two cooperative agreements, valued at \$972,000, for one AFRL NTEET project.

Other Matters of Interest

The Air Force did not properly manage and execute \$1.53 million in Recovery Act funds for the Aft Body Drag Reduction project because the Air Force withdrew Recovery Act funds from an Aft Body Drag Reduction contract action, and the contractor refused to implement Recovery Act reporting requirements. The mismanagement and execution of the Recovery Act funds caused at least a 10-month project delay of Aft Body Drag Reduction project work. See Appendix D for further discussion of the Aft Body Drag Reduction project.

Review of Internal Controls

DoD Instruction 5010.40, "Managers' Internal control (MICP) Program Procedures," July 29, 2010, requires DoD organizations to implement a comprehensive system of internal controls that provides reasonable assurance that programs are operating as intended and to evaluate the effectiveness of the controls. We identified an internal control weakness at the AFRL as defined by DoD Instruction 5010.40. Specifically, contracting officers did not convey 1) presolicitation notices, 2) clarity in presolicitation notices, and 3) use of previously competed contracts in Government Web site postings. We will provide a copy of the report to the senior official responsible for internal controls at the Air Force Research Laboratory Command.

Finding. Air Force Near Term Energy-Efficient Technologies Program Implementation Was Not Transparent

AFRL personnel properly justified and adequately planned and funded 9 of 10 Air Force NTEET projects.* In addition, AFRL personnel used modifications and task orders to previously awarded competitive cost-reimbursement contracts and cooperative agreements to award the 10 Air Force NTEET projects. As of March 31, 2010, contracting officials for the 10 Recovery Act NTEET projects awarded 24 contract actions, valued at \$34.8 million, and 2 cooperative agreements, valued at \$972,000. However, AFRL could have improved Air Force NTEET project contracting and public notification processes. Specifically, AFRL personnel should have:

- posted presolicitation notices on FBO prior to modifying 5 previously competed contracts for 2 NTEET projects,
- provided a more detailed description in the presolicitation notices for 1 NTEET project, and
- informed the public of their intent to use existing cost-reimbursement contracts previously competed to perform all 10 AFRL Recovery Act NTEET projects.

The AFRL lack of transparency occurred because of contracting officers' inconsistent contract implementation and oversight and the Air Force's lack of specific DoD Recovery Act implementing procedures. As a result, the Air Force did not achieve the Recovery Act objective of transparency in implementing AFRL NTEET actions.

AFRL NTEET Program Properly Planned Projects

The DoD Energy Security Task Force, with members of the Military Departments, Defense agencies, and the Office of the Secretary of Defense and chaired by the Director, Defense Research and Engineering, reviewed the projects. The DoD Energy Security Task Force planned and selected the Air Force NTEET projects based on their ability to satisfy DoD capability gaps, present opportunities for military applications, or spur initiatives within industry and DoD Components.

We reviewed 10 Air Force NTEET projects, valued at \$38.9 million, performed at AFRL headquarters at Wright Patterson Air Force Base, Ohio, as shown in Table 2.

* See Appendix D for details on the management and execution of the Aft Body Drag Reduction project.

Table 2. Recovery Act Projects Funded by Air Force RDT&E Appropriation

Projects	AFRL Headquarters
1. Highly Efficient Embedded Turbine Engine (HEETE project)	\$4,860,000
2. Adaptive Versatile Engine Technology (ADVENT project)	5,832,000
3. Efficient Small Scale and Power (ESSP project)	4,860,000
4. Materials for Green Propulsion	5,832,000
5. Aft Body Drag Reduction	6,804,000
6. Solar Cell Transparent Conductor	972,000
7. Greenhouse Gas Lifecycle Analysis	1,944,000
8. Highly Efficient Portable Fuel Cells	1,944,000
9. Hybrid UAV Renewable Propulsion and Power System	4,860,000
10. Toxicology Assessment of Biomass-Derived Aviation Fuel	972,000
Subtotal	38,880,000
Small Business Innovative Research and Small Business Tech Transfer Set-Aside*	1,432,896
Total	\$40,312,896

*We will review DoD Small Business Innovative Research and Small Business Tech Transfer Set Aside Recovery Act NTEET projects for all the Military Departments and DoD agencies in a separate report.

See Appendix E for more details on the 10 Air Force NTEET projects.

Air Force Promptly Distributed NTEET Program Funding

Assistant Secretary of the Air Force (Financial Management and Comptroller) personnel properly distributed Recovery Act funds to the Air Force Materiel Command. The Air Force Materiel Command provided AFRL \$38.9 million in funding for the 10 AFRL NTEET projects. We reviewed funding and contracting and cooperative agreement documenta-tion for the 10 projects. AFRL contracting officials promptly and fairly distributed Recovery Act funds meeting the Recovery Act goals for the NTEET projects. AFRL personnel began awarding contracts within 11 days after they received Recovery Act funds.

AFRL NTEET Contracting Process

AFRL used 24 existing cost-reimbursement contracts that were previously competed for the 10 NTEET projects. AFRL issued the 24 research and development contracts prior to the Recovery Act of 2009 by using a Broad Agency Announcement process. AFRL also used two existing cost-reimbursement cooperative agreements; one cooperative agreement was previously competed and the remaining one was awarded on a sole-source basis for one of the 10 NTEET projects. AFRL used <http://www.Recovery.gov> to post both research and development cooperative agreement award summaries. See Appendix G for a listing of the NTEET contract actions and cooperative agreements issued at AFRL.

AFRL Research and Development Process

AFRL project officials used a request for proposal (RFP) process for 18 contract actions valued at approximately \$19.7 million to support 7 NTEET projects.[†] AFRL did not issue an RFP for individual contract actions on three NTEET projects, valued at approximately \$15.1 million. Instead, AFRL either directly negotiated a contract action (two projects), or used a cooperative agreement process (one project). The RFP process communicated Government requirements to prospective contractors and to solicit proposals. FAR Subpart 15.203 (a), “Request for Proposals,” and Paragraph 35.016, “Broad Agency Announcement,” prescribe provisions for competitive selection of research and development proposals submitted so that proposals selected for awards are considered to be the result of full and open competition and fully compliant with Public Law 98-369, “The Competition in Contracting Act of 1984.”

AFRL NTEET Cooperative Agreements

As of March 31, 2010, AFRL awarded two cooperative agreements valued at \$972,000 for one AFRL NTEET project with RDT&E Recovery Act funds. AFRL project officials used <http://www.Recovery.gov> as a Governmental source and a means to make transparent cooperative agreements to the public.

AFRL contracting officials awarded two modifications to existing cooperative agreements on June 30 and July 8, 2009, for \$486,000 each for the Toxicology Assessment of Biomass Aviation Fuel project. Transparency was achieved because AFRL contract officials posted presolicitation notices on FBO for both modifications. AFRL also posted award summaries on <http://www.Recovery.gov>, as required by OMB Memorandum M-09-15, Section 5.1 (3). Both cooperative agreements clearly presented the amount funded by the Recovery Act and included required Recovery Act provisions. AFRL specifically stated the word “Recovery” in the title and clearly stated the intent for the research and development under the project. However, AFRL did not disclose its intent to use previously awarded cost-reimbursement cooperative agreements.

Cooperative agreements are governed by DoD 3210.6-R, “Department of Defense Grant and Agreement Regulations,” April 13, 1998. This regulation states that it is DoD policy to maximize use of competition in the award of grants and cooperative agreements; however, it is not a requirement. Grant officers must use merit-based, competitive procedures to the maximum extent practicable. One of the two AFRL cooperative agreements was competed, and the other was not. According to AFRL contracting officials, one cooperative agreement was not competed because the institution that was awarded the agreement was recognized as a leader in knowledge with a renowned stature in the fuels research community; therefore, AFRL contract officials recommended that this procurement action be awarded on a sole-source basis. The sole-source memorandum states that to regenerate this knowledge in another source would not be practical. It also stated that the developing combustion technologies and fuels needed to support DoD and Air Force mission requirements would be delayed by years. The AFRL

[†] Six other AFRL NTEET contract actions were not based on an RFP process. These included three contract actions for the Aft Body drag reduction project discussed in Appendix E, two Adaptive Versatile Engine Technology contract actions, and one Hybrid Unmanned Aerial Vehicle Renewable Propulsion and Power System contract action discussed in Appendix E.

decision not to compete this procurement action was adequately justified through a sole-source memorandum.

Presolicitation Notices for AFRL NTEET Contract Modifications Were Not Published

Of the 24 AFRL contract actions, 5 did not have presolicitation notices posted on the FBO Web site to facilitate public transparency before modification award. The other 19 had presolicitation notices posted on the FBO Web site and met the transparency requirements for posting presolicitation notices on the FBO Web site. In previous response to our finding AFRL noted that the AFRL contracting workforce was instructed on May 1, 2009, by the Chief, Acquisition Review and Policy Division to begin issuing presolicitation notices on modifications, pending resolution of the DoD direction. AFRL also noted in previous responses that on May 18, 2009, AFRL implemented the DoD guidance. The five AFRL contract actions without presolicitation notices occurred before the March 19, 2010, DPAP guidance removing the requirement to provide FBO presolicitation notices for modifications to existing contracts and orders.

Descriptions in Presolicitation Notices Were Unclear

For one AFRL NTEET project totaling approximately \$4.77 million, officials could have provided additional clarity in the presolicitation notices by providing additional detail on the description of the NTEET Efficient Small Scale and Power (ESSP) project task orders and modifications. While four presolicitations issued under the ESSP project were posted on the FBO Web site, they did not contain sufficient detail to provide the general public with a clear understanding of the purpose of the contract modifications awarded in support of the project.

AFRL Use of Existing Contracts Lacked Transparency

AFRL did not inform the public of its intent to use previously competed cost-reimbursement contracts. Federal Government organizations must meet requirements for

AFRL should have facilitated transparency by informing the public of its intent to use previously competed cost-reimbursement contracts for all 10 AFRL NTEET projects totaling approximately \$38.9 million.

Recovery Act contract actions by posting information on the FBO and FPDS Web sites. FAR Subpart 5.7, “Publicizing Requirements Under the American Recovery and Reinvestment Act of 2009,” directs contracting officers to use the Government-wide FBO Web site. It also provides rationale for awarding contracting actions that are not both fixed-price and competitive. AFRL should have facilitated transparency by informing the public of its intent to use previously competed cost-reimbursement

contracts for all 10 AFRL NTEET projects totaling approximately \$38.9 million.

Disclosure of Use of Cost-Plus-Fixed-Fee Contracts

AFRL presolicitation notices did not publically disclose the reasons for not using fixed-priced actions for 2 of the 24 contract actions as required by OMB and DoD Recovery Act implementing guidance. AFRL paid contractors a negotiated fee for 22 contract actions on 9 NTEET projects that was fixed at the inception of the contract. AFRL

officials stated that they awarded the 22 contract actions as estimated costs because of uncertainties involved in research and development contract performance that did not permit costs to be determined with sufficient accuracy. However, they noted that NTEET project funding was effectively capped at the predetermined Recovery Act funding amount.

Disclosure of Use of Cost-Sharing Contracts

AFRL awarded 2 of the 24 contract actions as cost-sharing contracts, totaling approximately \$5.2 million, to complete funding for the previously competed cost-sharing contracts between the contractor and the Government. AFRL contracting officials obligated the \$5.2 million to cover the Government cost share for the Adaptive Versatile Engine Technology program. AFRL did not post a presolicitation on the FBO Web site to disclose reasons for not using fixed-price contracts. FAR 16.303, “Cost-sharing contracts,” states that a cost-sharing contract is a cost-reimbursement contract in which the contractor receives no fee and is reimbursed only for an agreed-upon portion of its allowable costs. A cost-sharing contract may be used when the contractor agrees to absorb a portion of the costs, with the expectation of substantial compensating benefits.

AFRL Included Required FAR Clauses in NTEET Contracts

AFRL contracting officials included required Recovery Act clauses in all 24 contract actions awarded. The Federal Acquisition Circular 2005-32, “American Recovery and Reinvestment Act of 2009,” states contracting officials shall modify, on a bilateral basis, existing contracts to include FAR 52.203-15, “Whistleblower Protections under American Recovery and Reinvestment Act of 2009”; FAR 52.204-11, “American Recovery and Reinvestment Act-Reporting Requirements”; and FAR 52.215-2, “Audit and Records-Negotiation,” if Recovery Act funds will be used. AFRL contracting officials complied with OMB and FAR requirements including the applicable FAR clauses in the 24 contracts funded under the Recovery Act.

Tracking and Reporting

We did not review tracking and contractor reporting of the subject contracts at the time of our AFRL on-site review as OMB recipient reporting requirements of the Recovery Act actions were not in effect. We will review recipient reporting of selected NTEET project outcomes in a future report.

Summary

Although AFRL officials properly justified and adequately planned and funded 9 of 10 Air Force NTEET projects, AFRL used 24 existing cost-reimbursement contracts awarded before the Recovery Act was passed. We found that AFRL should have facilitated transparency by publicly disclosing presolicitation notices for five contract modifications for two NTEET projects. AFRL also should have provided additional project detail in four presolicitation notices. In addition, AFRL should have met FAR and OMB transparency requirements by informing and providing rationale to the general public of its intent to use modifications, valued at \$35.8 million, to the 24 existing cost-reimbursement contracts and 2 cooperative agreements for the 10 Air Force Recovery Act NTEET projects.

Management Comments on the Report and Our Response

Responding for the Commander, AFRL, the Executive Director, AFRL, provided comments on our internal controls discussion and three finding areas. For the full text of AFRL comments, see the Management Comments section of the report. See Appendix F for a summary of the management comments and our response.

Recommendations, Management Comments, and Our Response

Deleted, Revised, and Renumbered Recommendations. As a result of management comments, we deleted draft report Recommendation 1.a and revised and renumbered draft report Recommendation 1.b as Recommendation 1. We agreed with the Executive Director's comments on the draft that stated the current FAR and OMB Recovery Act guidance does not support recommending that transparency requirements for modifications be made in presolicitations to existing contracts. In our subsequent discussion with DPAP officials regarding AFRL's comment on whether DoD should initiate a FAR case or work with OMB, DPAP officials stated that the April 21, 2009, DoD guidance requiring transparency of contract modifications was based on initial OMB guidance from February and April 2009. DPAP officials noted that the updated DoD guidance, issued March 19, 2010, that removed the presolicitation notice requirement for modifications was supported by a FAR interim rule and resulted from multiple DPAP meetings with OMB and the FAR Council. On July 16, 2010, the final FAR requirement exempted presolicitation notices for modifications to existing contracts and was incorporated into FAR section 5.704. However, FAR section 5.705 continues to require post-award disclosure and publicizing of modifications to existing contracts. Based on this updated guidance, we concluded that it would not serve any useful purpose to request further revision to the existing FAR or DoD Recovery Act contracting implementation guidance. Therefore, we deleted draft report Recommendation 1.a.

1. To improve Recovery Act contract compliance we recommend that the Commander, Air Force Research Laboratory, publicly disclose details of use of existing cost-reimbursement contracts previously competed to perform Air Force Research Laboratory Recovery Act Near Term Energy-Efficient Technologies projects.

Air Force Comments. Responding for the Commander, AFRL, the Executive Director, AFRL, agreed with the intent of the recommendation to provide maximum transparency through the disclosure of the contract type and competition to be used for Recovery Act awards.

Our Response

The Executive Director comments are responsive to the intent of the recommendation. No further management comments are required.

Appendix A. Scope and Methodology

This is one in a series of reports on DoD implementation of the Recovery Act NTEET program. We conducted this audit from September 2009 through November 2010 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and our conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Our overall audit objective was to evaluate DoD's implementation of plans for the Recovery Act of 2009. To accomplish our objective, we audited the planning, funding, and execution of AFRL non-small-business research and development projects in the DoD NTEET Program Plan, May 15, 2009, to determine whether they complied with Recovery Act requirements, OMB guidance, the FAR, and DoD implementing guidance. We reviewed NTEET program-related solicitation and contract award notices posted on the FBO Web site through March 31, 2010. Specifically, we determined whether:

- the selected projects were adequately planned to ensure the appropriate use of Recovery Act funds (Planning);
- funds were awarded and distributed in a prompt, fair, and reasonable manner (Funding);
- contracts contained required Recovery Act FAR clauses (Initial Execution); and
- use of funds were transparent to the public on FBO Government Web site (Project Execution).

We selected all 10 NTEET Air Force projects that were managed at Wright Patterson Air Force Base. We met with AFRL program and contracting officials to learn about the projects and their status in the contract award process. This allowed us to review how contracts were being managed to comply with the transparency and accountability requirements in the Recovery Act as well as implementing OMB, FAR, and DoD guidance. For the Aft Body Drag Reduction project, we communicated with contracting officials at WRAFB. AFRL transferred \$1.53 million in Recovery Act funds to contracting officials at WRAFB to implement portions of the Aft Body Drag Reduction NTEET project. For all selected projects, we reviewed contracting actions such as task orders, modifications, and cooperative agreements by obtaining key documentation from contract files including transparency documentation such as presolicitation notices. We researched the FBO Government Web site to identify Air Force NTEET presolicitation and award announcements posted there. Additionally, we applied a Recovery Act Contract Checklist developed by the Recovery Accountability and Transparency Board. We met with Office of the Undersecretary of Defense for Acquisition, Technology, and Logistics officials to learn how candidate NTEET projects were selected for Recovery Act funding.

We did not use classical statistical sampling techniques that would permit generalizing results to the total population because there were too many potential variables with unknown parameters at the beginning of this analysis. The predictive analytic techniques employed provided a basis for logical coverage not only of Recovery Act dollars being

expended, but also of types of projects and types of locations across the Military Services, Defense agencies, State National Guard units, and public works projects managed by USACE.

Use of Computer-Processed Data

We used computer processed data to perform this audit. Specifically, we used the notices on the FBO Web site, <http://www.Recovery.gov>, and contract documentation from the contract file. We also obtained contract documentation from the Electronic Document Access system. We tested the accuracy of the data by comparing the project and contracting data reported in the contract file for consistency. Our audit was focused on the reporting of contract actions on specific Air Force projects. We determined that data obtained through the FBO Web site and the Electronic Document Access were sufficiently reliable for meeting the audit objectives when compared with contract records.

Prior Coverage

The Government Accountability Office, the Department of Defense Inspector General, and the Military Departments have issued reports and memoranda discussing DoD projects funded by the Recovery Act. You can access unrestricted reports at <http://www.Recovery.gov/accountability>.

Appendix B. Recovery Act Criteria and Guidance

The following list includes the primary Recovery Act criteria documents (notes appear at the end of the list):

- U.S. House of Representatives Conference Committee Report 111-16, “Making Supplemental Appropriations for Job Preservation and Creation, Infrastructure Investment, Energy Efficiency and Science, Assistance to the Unemployed, and State and Local Fiscal Stabilization, for the Fiscal Year Ending September 30, 2009, and for Other Purposes,” February 12, 2009
- Public Law 111-5, “American Recovery and Reinvestment Act of 2009,” February 17, 2009
- OMB Memorandum M-09-10, “Initial Implementing Guidance for the American Recovery and Reinvestment Act of 2009,” February 18, 2009
- OMB Bulletin No. 09-02, “Budget Execution of the American Recovery and Investment Act of 2009 Appropriations,” February 25, 2009
- White House Memorandum, “Government Contracting,” March 4, 2009
- White House Memorandum, “Ensuring Responsible Spending of Recovery Act Funds,” March 20, 2009
- OMB Memorandum M-09-15, “Updated Implementing Guidance for the American Recovery and Reinvestment Act of 2009,” April 3, 2009¹
- OMB Memorandum M-09-16, “Interim Guidance Regarding Communications With Registered Lobbyists About Recovery Act Funds,” April 7, 2009
- OMB Memorandum M-09-19, “Guidance on Data Submission under the Federal Funding Accountability and Transparency Act (FFATA),” June 1, 2009
- OMB Memorandum M-09-21, “Implementing Guidance for the Reports on Use of Funds Pursuant to the American Recovery and Reinvestment Act of 2009,” June 22, 2009²
- OMB Memorandum M-09-24, “Updated Guidance Regarding Communications with Registered Lobbyists About Recovery Act Funds,” July 24, 2009
- OMB Memorandum M-09-30, “Improving Recovery Act Recipient Reporting,” September 11, 2009

- OMB Office of Federal Procurement Policy, “Interim Guidance on Reviewing Contractor Reports on the Use of Recovery Act Funds in Accordance with FAR Clause 52.204-11,” September 30, 2009²
- OMB Memorandum M-10-08, “Updated Guidance on the American Recovery and Reinvestment Act – Data Quality, Non-Reporting Recipients, Reporting of Job Estimates,” December 18, 2009²
- OMB Memorandum M-10-14 “Updated Guidance on the RRA,” March 22, 2010²
- White House Memorandum, “Combating Noncompliance With Recovery Act Reporting Requirements,” April 6, 2010²
- OMB Memorandum M-10-17, “Holding Recipients Accountable for Reporting Compliance under the American Recovery and Reinvestment Act,” May 4, 2010²
- OMB Memorandum M-10-34, “Updated Guidance on the American Recovery and Reinvestment Act,” September 24, 2010²

Notes

¹ Document provides Government-wide guidance for carrying out programs and activities enacted in the American Recovery and Reinvestment Act of 2009. The guidance states that the President’s commitment is to ensure that public funds are expended responsibly and in a transparent manner to further job creation, economic recovery, and other purposes of the Recovery Act.

² Documents provide Government-wide guidance for carrying out the reporting requirements included in section 1512 of the Recovery Act. The reports will be submitted by recipients beginning in October 2009 and will contain detailed information on the projects and activities funded by the Recovery Act.

Appendix C. DoD Near Term Energy-Efficient Technologies Program Funding and Functional Areas

The Recovery Act appropriated \$300 million in DoD RDT&E funds in four appropriation accounts of \$75 million each for Army, Navy, Air Force and Defense-wide RDT&E Recovery Act projects. The DoD NTEET program divided the funds to support project categories. The table below provides the RDT&E funding and category of the planned work.

Table. Program Categories of Energy-Related RDT&E Projects
(Values in thousands)

Category	Army	Navy	Air Force	Defense-Wide	DOD Total
Fuel-Mobility	\$40,000	\$52,900	\$28,000	\$16,000	\$136,900
Facility Energy	10,000	3,500			13,500
Operational Efficiencies and Commercial Practices	None	None	1,000	9,000	10,000
Supply and Distribution	15,000	16,100	37,000	47,000	115,100
Tactical Power and Generators	10,000	2,500	9,000	3,000	24,500
Totals	\$75,000	\$75,000	\$75,000	\$75,000	\$300,000

The energy-related projects have the potential to identify technologies that can increase our fuel efficiency and thereby reduce our dependence on foreign energy.

Fuel Optimization for Mobility Platforms

These RDT&E efforts include testing various materials, like ceramics, in engine and equipment design to lower thermal loads and decrease the need for cooling of component parts that require additional energy to perform the cooling tasks. Efforts also include conducting demonstrations on the fuel efficiency of low observable subsonic propulsion systems for unmanned aerial vehicles.

Facility Energy Initiatives

These projects include developing or reviewing off-the-shelf enterprise energy auditing programs and software that can couple energy security with energy efficiency, reducing power consumption in tactical heating and air conditioning systems, and developing whole-building energy modeling and monitoring systems and renewable energy building integration.

Operational Efficiencies

These projects include developing or reviewing off-the-shelf enterprise energy auditing and water management programs and software that can couple energy security with energy efficiency, whole-building energy modeling, monitoring systems, and renewable energy building integration.

Domestic Energy Supply and Distribution

These include waste-to-energy and waste-to-fuel technology research and demonstrations, landfill gas use, biomass and algae fuel oil production, multi-junction solar photovoltaic for cells and sensors, wave and thermal energy from oceans, wind power, and analyzing radar cross sections.

Tactical Power Systems and Generators

These projects include developing and demonstrating methanol-based portable fuel cells with improved energy densities, long-duration multi-junction photovoltaics for Unmanned Aerial Vehicles (UAV), fuel cells, converting waste heat to cooling using absorption environmental control systems, and scalable micro-grid electrical distribution systems for fixed and tactical installation use.

Appendix D. Execution of the Near Term Energy-Efficient Technologies Aft Body Drag Reduction Project Was Delayed

The AFRL transferred approximately \$1.53 million in Recovery Act funds to contracting officials at Warner Robins Air Force Base (WRAFB) to implement portions of the Aft Body Drag Reduction NTEET project. On September 2, 2009, WRAFB contracting officials applied the funds to an existing non-Recovery Act contract without including required Recovery Act reporting and other clauses. As of March 31, 2010, the WRAFB contractor, Support Systems Associates, Inc., had spent \$302,455 of the Recovery Act funds. WRAFB contracting officials later requested AFRL to recall the Recovery Act funds. According to AFRL officials, this occurred because the WRAFB Aft Body Drag Reduction contractor did not want to implement Recovery Act reporting requirements. As a result, the Recovery Act funds for the Aft Body Drag Reduction NTEET project were not properly managed. As a consequence, the mismanagement and execution of the Recovery Act funds caused at least a 10-month project delay of Aft Body Drag Reduction work.

AFRL Transfer and Obligation of Aft Body Drag Reduction Recovery Act Funds to WRAFB

The \$6.8 million Aft Body Drag Reduction project investigates energy efficiency concepts for future mobility aircraft. Project roadmaps will demonstrate aerodynamic efficiency-related technologies. AFRL awarded three task orders, totaling approximately \$5 million in Recovery Act funds, to previously competed and awarded cost-reimbursement contracts for this project.

On July 30, 2009, AFRL officials transferred an additional \$1.53 million of Aft Body Drag Reduction NTEET Recovery Act funds to contracting officials at WRAFB. On September 2, 2009, WRAFB contracting officials modified an existing delivery order, F09603-02-D-0065-0177, modification 02, previously awarded to Support Systems Associates, Inc., to obligate the \$1.53 million in Recovery Act funding. The modification extended the contract period of performance from September 2, 2009, to September 1, 2010. The required Recovery Act contract clauses were not included in the modification and a required Recovery Act presolicitation notice was not posted on the FBO Web site.

Unimplemented Project Recovery Act Reporting

During the period of September 2, 2009, through November 18, 2009, the contractor expended \$302,455 of the \$1.53 million in Recovery Act funds from delivery order F09603-02-D-0065-0177, modification 02, without implementing Recovery Act reporting requirements. According to WRAFB contracting officials, the WRAFB contractor did not know the funds awarded on delivery order F09603-02-D-0065-0177, modification 02, were Recovery Act funds because WRAFB did not include the required FAR clauses in the modification. Once the contractor was made aware that modification 02 was awarded with Recovery Act funding, the contractor stopped work on the performance for the Aft Body Drag Reduction project. The contractor did not want to

implement the reporting requirements. WRAFB should have properly managed and executed Recovery Act funds by posting required presolicitation notices on the FBO Web site including required FAR clauses in delivery order F09603-02-D-0065-0177, modification 02. This would have helped to ensure that Recovery Act funds were accounted for in a timely manner and met OMB guidance.

Application of Non-Recovery Act Funds to the Aft Body Drag Reduction Project

On January 11, 2010, AFRL officials at WPAFB sent non-Recovery Act funds totaling \$1.53 million to WRAFB so that the Aft Body Drag Reduction project contractor could continue performance on the project without having to implement the Recovery Act required reporting requirements. According to AFRL contracting officials, the \$1.53 million non-Recovery Act replacement funds were appropriated for FY 2009 and were based on FY 2009 funds that were used between January 11 and February 28, 2010. On February 1, 2010, WRAFB officials awarded non-Recovery Act delivery order F09603-02-D-0065-0177, modification 04, to Support Systems Associates, Inc., replacing modification 02. According to AFRL contracting officials, on March 18, 2010, the Defense Finance Accounting Service returned the \$1.53 million in NTEET Recovery Act funds to AFRL for the Aft Body Drag Reduction project.

Expended Recovery Act Funds Caused Delays of Aft Body Drag Reduction Project Work

The funds awarded to the Aft Body Drag Reduction NTEET project were not properly managed. As a consequence, the “attempted expenditure of Recovery Act funds” caused mismanagement resulting in at least a 10-month delay of the Aft Body Drag Reduction project work.

Delays in Aft Body Drag Reduction Project Work

The placement and recall of AFRL Recovery Act funds to WRAFB for the Aft Body Drag Reduction resulted in a 6-month funding delay in that Recovery Act funds were not available for AFRL contracting officials to obligate for the September 2009 through March 2010 period of performance at WRAFB. AFRL contracting officials awarded \$1.72 million of Recovery Act funds with replacement modification FA8650-08-D-3858-0021 on July 15, 2010, obligating the returned Recovery Act funds to the Aft Body Drag Reduction Project. The resulting project delay was at least 10 months based on changing modification F09603-02-D-0065-0177-02 award from September 2, 2009, to July 2010. The delay resulted in improper Recovery Act project funding and execution as well as inaccurate reporting of WRAFB expenditures for the Aft Body project.

We agree with WRAFB officials’ decision to award non-Recovery Act funds on delivery order F09603-02-D-0065-0177, modification 04, because the contractor did not want to implement the reporting requirement for the use of Recovery Act funds to be fully transparent. However, WRAFB officials should have included the required FAR clauses in F09603-02-D-0065-0177, modification 02, and should have properly managed the Recovery Act funds.

Appendix E. Description and Status of AFRL Near Term Energy-Efficient Technologies Projects

The Recovery Act provided the Air Force \$75 million of RDT&E funding for improvements in energy generation and efficiency, transmission, and storage for use on military installations and within operations forces. The projects include research and development of technologies from development of combustion system, state of the art turbine engines, portable fuel cells, and fuel cell based power system.

1. Highly Efficient Embedded Turbine Engine

The Highly Efficient Embedded Turbine Engine (HEETE) project is a technology development program that pursues high temperature, high pressure ratio compressor technologies and related features to develop a combustion system in a jet engine or gas turbine. The AFRL goal is to define the next generation engine architecture for subsonic missions. AFRL received \$4.86 million in Recovery Act funds for this project. As of March 31, 2010, AFRL awarded four task orders valued at \$4.85 million to conduct research and provide data for the Highly Efficient Embedded Turbine Engine. Although the presolicitation notices were posted on the FBO Web site and included the Recovery Act FAR requirements, AFRL should have met transparency requirements by informing the public of its intent to use four previously competed contracts for this project. According to AFRL officials, remaining Recovery Act funds totaling \$3,819 resulting from over estimation of work on some orders will be returned by AFRL to the Air Force for reprogramming.

2. Adaptive Versatile Engine Technology

The Adaptive Versatile Engine Technology (ADVENT) effort provides scientific, engineering, and technical research to advance the state of the art in turbine engines by conducting analysis on key technologies necessary for the execution of the ADVENT project. The contractor will develop and analyze advanced propulsion concepts, conduct experimental research, develop advanced proponents, develop test plans and test vehicles, and analyze propulsion systems and subsystems. AFRL received \$5.83 million in Recovery Act funds for this project. As of March 31, 2010, AFRL awarded four modifications with a total value of \$5,826,013 to finalize funding for four previously competed cost sharing contracts for the Government share of the ADVENT Program Phase 1 and to conduct research to provide data for the ADVENT. Two of the 4 modifications were based issued RFPs. The other two modifications were issued bi-laterally without use of an RFP process. AFRL should have posted presolicitation notices for this project on the FBO Web site and informed the public of its intent to use previously competed contracts for the four modifications awarded for this project. According to AFRL officials, remaining Recovery Act funds totaling \$5,987 will be returned by AFRL to the Air Force for reprogramming.

3. Efficient Small Scale and Power

The Efficient Small Scale and Power (ESSP) Core Engine conducts demonstrations of small-scale propulsion systems to reduce fuel consumption for UAVs and power generators. AFRL received \$4.86 million in Recovery Act funds for this project. As of March 31, 2010, AFRL had awarded two task orders and two modifications with a total value of \$4,767,536 to design studies for mission core engine analysis and design activities for innovative technologies for the Versatile Affordable Advanced Turbine Engines program. AFRL officials transferred Recovery Act funds of \$89,900 to Oakridge National Laboratories to conduct ceramic material testing turbine. The four presolicitations for the two modifications and two task orders met OMB requirements for posting on the FBO Web site, but there was not enough detail to provide the general public with a clear understanding for the purpose of the task order and modifications awarded in support of the project. Also, AFRL should have met transparency requirements by informing the public of its intent to use previously competed contracts for this project. According to AFRL officials, remaining Recovery Act funds totaling \$2,564 will be returned by AFRL to the Air Force for reprogramming.

4. Materials for Green Propulsion

The Materials for Green Propulsion project defines risk reduction projects for advanced materials and manufacturing technologies that will deliver improvement in fuel burn and a reduction in greenhouse gas missions for both fielded and next generation commercial and military turbine engines. AFRL received \$5.83 million in Recovery Act funds for this project and awarded four task orders with a total value of \$5,831,826 to identify propulsion upgrade options and to perform current engine analysis for this project. AFRL posted presolicitation notices on the FBO Web site, but the notices did not mention the intent to use cost-reimbursement contracts that were previously competed to perform this project. According to AFRL officials, remaining Recovery Act funds of \$174.00 will be returned by AFRL to the Air Force for reprogramming.

5. AFT Body Drag Reduction

The Aft Body Drag Reduction task force investigates future mobility aircraft concepts that provide dramatic increases in energy efficiency. Roadmaps will be used to demonstrate aerodynamic efficiency-related technologies created for use in a follow-on effort. AFRL received approximately \$6.8 million in Recovery Act funds for this project. AFRL awarded three task orders with a total value of \$4,979,663 to conduct research for revolutionary configurations for energy efficiency. In addition, AFRL transferred \$1.53 million in Recovery Act funds to WRAFB on July 30, 2009. AFRL later recalled the Recovery Act funds because the contractor did not want to implement Recovery Act reporting requirements (see Appendix D). AFRL posted presolicitation notices on the FBO Web site for its three task orders, but the notices did not mention the intent to use cost-reimbursement contracts that were previously competed to perform this project.

6. Solar Cell Transparent Conductor

The Solar Cell Transparent Conductor objective is to develop and test alternatives to expensive indium tin oxide and transparent conductive oxide coatings used in many solar cell designs with a less expensive alternative. AFRL received \$972,000 in Recovery Act funds for this project. As of March 31, 2010, AFRL awarded one modification and one

task order with a total value of \$971,760. The modification was awarded to a Small Business Innovative Research and Small Business Tech Transfer Set Aside project which will be reviewed in a separate report. The task order authorized the contractor to explore laser ablation growth reactor changes and upgrades to enable application of chemical vapor disposition in the growth reactor. This project met some transparency requirements by posting presolicitation notices on the FBO Web site and including required FAR clauses in the contract. AFRL should have informed the public of its intent to use previously competed contracts for this project. According to AFRL officials, the remaining Recovery Act funds of \$240.00 will be returned by AFRL to the Air Force for reprogramming.

7. Greenhouse Gas Life-Cycle Analysis

This project supports the evaluation of a life-cycle greenhouse gas “footprint” of alternative fuels, relative to a current petroleum baseline. The project was initiated by the Interagency Working Group on Greenhouse Gas Life-Cycle Analysis. AFRL received \$1.94 million in Recovery Act funds for the project. AFRL awarded one task order and one modification with a total value of \$1.31 million. In addition, AFRL transferred \$300,000 to the Federal Aviation Administration to support fuels research performed in the Propulsion Directorate of AFRL. AFRL transferred remaining funds of \$329,998 to the Technology Support Flight unit at Wright Patterson Air Force Base to support the Assessment of Alternative Energy Sources for DoD applications. AFRL posted presolicitation notices on the FBO Web site for the task order and modification, but the notices did not mention the intent to use cost-reimbursement contracts that were previously competed to perform this project.

8. Highly Efficient Portable Fuel Cells

The purpose of this project is to develop and demonstrate methanol-based portable fuel cells with improved energy densities. The project would result in the demonstration of 20 units of a portable power fuel cell. The total Recovery Act funding for this project is \$1,944,000. AFRL awarded a task order on June 29, 2009, with a value of \$1,943,965, to conduct research for the “Development and Demonstration of Improved Materials for Highly Efficiency Portable Fuel Cells.” AFRL posted a presolicitation notice on the FBO Web site for the task order but did not mention the intent to use cost-reimbursement contracts that were previously competed to perform this project. According to AFRL officials, the remaining Recovery Act funds of \$35.00 will be returned by AFRL to the Air Force for reprogramming.

9. Hybrid Unmanned Aerial Vehicle Renewable Propulsion and Power System

This project intends to develop a renewable long-endurance (months on station) UAV using four-junction photovoltaic power to renew a fuel cell-based power system and high efficient electric propulsion. The project received \$4,860,000 of Recovery Act funds. AFRL modified a previously competed cost-plus-fixed-fee contract on July 17, 2009, with a value total of \$4,859,929 to incorporate added work into this project and to modify the delivery schedule. AFRL did not post a presolicitation notice on the FBO Web site for this project. AFRL should have met transparency requirements by informing the public of its intent to use previously competed contracts for this project. According to AFRL

officials, the remaining Recovery Act funds of \$71.00 will be returned by AFRL to the Air Force for reprogramming.

10. Toxicology Assessment of Biomass-Derived Aviation Fuel

The objective of this effort is to investigate and evaluate advanced fuels and fuel technologies. Total AFRL Recovery Act funding for this project is \$972,000. AFRL awarded two modifications to existing cooperative agreements for \$486,000 each. AFRL posted presolicitation notices on the FBO Web site for both cooperative agreements but did not mention the intent to use previously awarded, cost-reimbursement cooperative agreements.

Appendix F. Management Comments on the Report and Our Response

Responding for the Commander, AFRL, the Executive Director, AFRL, provided comments on our internal controls discussion and three finding areas. For the full text of AFRL comments, see the Management Comments section of the report.

AFRL Comments on Review of Internal Controls

The Executive Director disagreed that there were any internal control weaknesses with presolicitation notices, clarity in the presolicitation notices, and use of previously competed contracts in AFRL Government Web site postings. The Executive Director stated that AFRL personnel identified a DoD policy discrepancy that was not resolved until the DoD policy was rescinded. The Executive Director also stated that AFRL implemented the use of presolicitation notices on modifications to existing contracts until the DoD policy was rescinded. The Executive Director further stated that the AFRL contracting officers appropriately complied with policy and regulation regarding clarity in presolicitation notices and use of previously competed contracts.

Our Response

The AFRL internal control weakness was caused by the absence of an AFRL decision to quickly implement the FAR subpart 5.7, “Publicizing Requirements Under the American Recovery and Reinvestment Act of 2009,” OMB Memoranda M-09-10 and M-09-15, and the April 21, 2009, DoD guidance to post presolicitation notices on the FBO Web site for modifications and task orders. Therefore, the notices were not readily available and did not provide transparency during the April 21, 2009, DoD guidance. Without these controls in place, management is not able to state that AFRL contracting officers appropriately complied with policy and regulation.

AFRL Comments on Posted Presolicitation Notices

The Executive Director agreed that five AFRL presolicitation notices were not posted, stating that AFRL did not post the notices because of an AFRL-perceived discrepancy between OMB and DoD Recovery Act transparency requirements. The Executive Director noted that no presolicitation notice requirement existed before the DoD Recovery Act implementation guidance, “Updated Instructions on Recovery Act Presolicitation and Award notices for actions Funded by the American Recovery Reinvestment Act of 2009.” The Executive Director stated that AFRL personnel believed the 2009 DoD guidance resulted in an additional Recovery Act-related contracting requirement that was not required of other Federal agencies nor included in the OMB or FAR policy. The Executive Director also stated that on May 18, 2009, AFRL personnel directed that the DoD guidance be implemented after AFRL personnel unsuccessfully attempted to resolve the perceived discrepancy. The Executive Director noted that DoD subsequently rescinded the requirement for presolicitations for contract modifications in its March 19, 2010, guidance.

Our Response

Our finding is based primarily on OMB Memorandum M-09-15, as well as the associated DoD implementing guidance of April 21, 2009. The modifications were awarded May 5, 2009 (two awards), June 17, 2009; July 6, 2009; and July 17, 2009, after OMB and DoD issued their implementing guidance. We concluded that AFRL did not comply with OMB and DoD guidance regarding the presolicitations for the five awarded modifications.

We agree that the March 19, 2010, DoD-revised guidance subsequently rescinded the requirement for presolicitations for contract modifications. We have revised the final report “Presolicitation Notices” section to note the March 19, 2010, contract modifications requirement and to further explain that FAR 5.704 prescribed posting requirements. We also added further background regarding the OMB Memorandum M-09-15, section 6.2, requirements for solicitation of offers when Recovery Act funds are used for modifications as well as for task and delivery order contracts.

AFRL Comments on Clarity in Presolicitation Notices

The Executive Director stated that four presolicitation notices for the ESSP project contained sufficient information to adequately describe the four expected contract action awards. The Executive Director also stated that the amount of information needed to adequately describe a project is subjective; and therefore, he believed that AFRL contracting officers implemented the Recovery Act guidance appropriately.

Our Response

The description in the presolicitation for each of the four awards stated, “This effort is in Support of the VAATE II Versatile Core-Efficient Small Scale Propulsion (ESSP) Core Engine Demonstrator.” The OMB Memorandum M-09-10 and the April 21, 2009, DoD implementing guidance requires the use of clear and concise language to describe the planned procurement. The guidance also requires that the description of the goods and services be understood by the general public. It further states that the description should supplement the title to provide public understanding and knowledge of the Recovery Act-funded project. As noted in the report, we concluded that AFRL officials did not provide enough detail to give the general public a clear understanding of the purpose of the awards. Although we agree that the amount of information needed to describe the purpose of the award may be subjective, we disagree that contracting officers implemented the guidance appropriately.

AFRL Comments on Transparency of AFRL Use of Existing Contracts

The Executive Director disagreed that AFRL needed to inform the public of its intent to use existing cost-reimbursement contracts that were previously competed. The Executive Director stated that public notices do not require a discussion on contract type other than fixed-price contracts or a discussion of the competition of the contract being used. The Executive Director noted there was no requirement in the OMB guidance to put the contract type or the competitive nature of the contract being used in a presolicitation notice. The Executive Director also noted that contracting officers stated in the presolicitation notice that an existing contract was being used.

The Executive Director further noted that OMB Memorandum M-09-10 discusses award announcement, rather than presolicitation notices. The Executive Director also noted that OMB Memorandum M-09-10 describes the requirement for specific information to be included only if the effort is not competitively awarded or if it is not a fixed-price contract. The Executive Director stated that there is no OMB requirement to report the use of modifications to existing contracts. The Executive Director also stated that AFRL award notices included a detailed description of the research and development, as well as statements that conveyed the intent to use other-than-fixed-price contracts to award the work.

Our Response

As noted in the report, FAR subpart 5.7 contains contracting requirements in effect at the time the AFRL contract modifications were made. FAR subpart 5.7 directs contracting officers to use the Government-wide FBO Web site and provides rationale for the awarding of any contracting actions that were not fixed-price and competitive. OMB Memorandum M-09-10 imposes unique transparency requirements that change the presolicitation and award notice process beyond standard practice. For example, the presolicitation notice for the HEETE project did not state that the contract actions were issued under an “existing” IDIQ contract and that the action was not fixed price and was not competed. FAR Subpart 1.1, “Purpose, Authority and Issuance,” directs that the FAR is the primary document for uniform policy and procedures for acquisition by all Executive agencies. We disagree that presolicitation notices stated that existing AFRL contracts were being used. For example, the presolicitation notices for the ESSP project did not state that an existing cost-reimbursement contract would be used. It stated, “This announcement is to notify that additional work will be incorporated into task order 000 which will obligate Recovery Act Funds.” Based on our review, the presolicitation notices lacked transparency.

OMB Memorandum M-09-10 requires that specific information be included only if the effort is not competitively awarded or if it is not fixed price. However, it also requires the inclusion of section 6.2, (1), “Unique Requirements for Posting Presolicitation Notices.” The section specifically states that the Recovery Act imposes transparency requirements that change the presolicitation and award notice process beyond standard practice. The section also states that presolicitation notices must be posted on the FBO Web site in accordance with FAR Part 5.

Appendix G. Air Force Laboratory Contract and Cooperative Agreement Actions

Projects/ Contracts	Cooperative Agreements	Action Type	Contract Type	Competed	Use of Previously Awarded Contracts	Posted Pre- solicitation on FBO	Posted Award Notice on FBO	Posted Adequate Project Description on FBO	Included Appropriate Recovery Act Clauses in the Contract	Included Contract Action in FPDS	Amount
HEETE Project											
FA8650-09-D-2923 0009		Task Order	Cost-Plus-Fixed-Fee	Yes	Yes	Yes	Yes	No	Yes	Yes	\$1,471,302
FA8650-09-D-2922 0006		Task Order	Cost-Plus-Fixed-Fee	Yes	Yes	Yes	Yes	No	Yes	Yes	935,000
FA8650-09-D-2921 0006		Task Order	Cost-Plus-Fixed-Fee	Yes	Yes	Yes	Yes	No	Yes	Yes	974,988
FA8650-09-D-2925 0004		Task Order	Cost-Plus-Fixed-Fee	Yes	Yes	Yes	Yes	No	Yes	Yes	1,474,891
ADVENT Project											
FA8650-07-C-2802 P00023		Modifi- cation	Cost Sharing	Yes	Yes	No	Yes	No	Yes	Yes	2,642,448
FA8650-07-C-2803 P00025		Modifi- cation	Cost Sharing	Yes	Yes	No	Yes	No	Yes	Yes	2,632,998
FA8650-08-D-2806 0010 05		Modifi- cation	Cost-Plus-Fixed-Fee	Yes	Yes	No	Yes	No	Yes	Yes	306,882
F33615-03-D-2354 0024 02		Modifi- cation	Cost-Plus-Fixed-Fee	Yes	Yes	No	Yes	No	Yes	Yes	243,685
ESSP Project											
FA8650-09-D-2929 0003		Task Order	Cost-Plus-Fixed-Fee	Yes	Yes	Yes	Yes	No	Yes	Yes	1,834,771
FA8650-09-D-2924 0003		Task Order	Cost-Plus-Fixed-Fee	Yes	Yes	Yes	Yes	No	Yes	Yes	1,943,994
FA8650-09-D-2924 0003 01		Modifi- cation	Cost-Plus-Fixed-Fee	Yes	Yes	Yes	Yes	No	Yes	Yes	485,988
FA8650-09-D-2929 0003 01		Modifi- cation	Cost-Plus-Fixed-Fee	Yes	Yes	Yes	Yes	No	Yes	Yes	502,783

Appendix G. Air Force Laboratory Contract and Cooperative Agreement Actions (cont'd)

Projects/ Contracts	Cooperative Agreements	Action Type	Contract Type	Competed	Use of Previously Awarded Contracts	Posted Pre- solicitation on FBO	Posted Award Notice on FBO	Posted Adequate Project Description on FBO	Included Appropriate Recovery Act Clauses in the Contract	Included Contract Action in FPDS	Amount
Materials for Green Propulsion											
FA8650-09-D-2925 0003		Task Order	Cost-Plus-Fixed-Fee	Yes	Yes	Yes	Yes	No	Yes	Yes	1,457,992
FA8650-09-D-2922 0005		Task Order	Cost-Plus-Fixed-Fee	Yes	Yes	Yes	Yes	No	Yes	Yes	1,458,000
FA8650-09-D-2923 0007		Task Order	Cost-Plus-Fixed-Fee	Yes	Yes	Yes	Yes	No	Yes	Yes	1,457,834
FA8650-09-D-2921 0005		Task Order	Cost-Plus-Fixed-Fee	Yes	Yes	Yes	Yes	No	Yes	Yes	1,457,723
Aft Body Drag Reduction											
FA8650-08-D-3857 0007		Task Order	Cost-Plus-Fixed-Fee	Yes	Yes	Yes	Yes	No	Yes	Yes	892,193
FA8650-08-D-3858 0005		Task Order	Cost-Plus-Fixed-Fee	Yes	Yes	Yes	Yes	No	Yes	Yes	3,202,510
FA8650-08-D-3859 0005		Task Order	Cost-Plus-Fixed-Fee	Yes	Yes	Yes	Yes	No	Yes	Yes	884,960
³ F09603-02-D-0065 0177 02		Modifi- cation	Time and Material	Yes	No	No	No	No	No	Yes	1,536,915
Solar Cell Transparent Conductor											
FA8650-04-D-5711 0017		Task Order	Cost-Plus-Fixed-Fee	Yes	Yes	Yes	Yes	No	Yes	Yes	471,824

³ Contract awarded by Warner Robins Air Logistics Center officials (See Appendix D).

Appendix G. Air Force Laboratory Contract and Cooperative Agreement Actions (cont'd)

Projects/ Contracts	Cooperative Agreements	Action Type	Contract Type	Competed	Use of Previously Awarded Contracts	Posted Pre- solicitation on FBO	Posted Award Notice on FBO	Posted Adequate Project Description on FBO	Included Appropriate Recovery Act Clauses on the Contract	Included Contract Action in FPDS	Amount
Greenhouse Gas Life-Cycle Analysis											
FA8650-08-D-2806 0019		Task Order	Cost-Plus- Fixed-Fee	Yes	Yes	Yes	Yes	No	Yes	Yes	569,122
FA8650-08-D-2806 0019 05		Modifi- cation	Cost-Plus- Fixed-Fee	Yes	Yes	Yes	Yes	No	Yes	Yes	744,880
Highly Efficient Portable Fuel Cells											
FA8650-05-D-5807 0070		Task Order	Cost-Plus- Fixed-Fee	Yes	Yes	Yes	Yes	No	Yes	Yes	1,943,965
Hybrid UAV Renewable Propulsion and Power System											
FA8650-08-C-2935 P00003		Modifi- cation	Cost-Plus- Fixed-Fee	Yes	Yes	No	Yes	No	Yes	Yes	4,859,929
Total of Contracts										36,387,577	
Toxicology Assessment of Biomass-Derived Aviation Fuel											
	F33615-03-2-2347 P00109	COOP	Cost Reim- bursable	No	⁴ Yes	Yes	⁵ Yes	³ No	N/A	N/A	486,000
	FA8650-05-2-6518 P00061	COOP	Cost Reim- bursable	Yes	² Yes	Yes	³ Yes	³ No	N/A	N/A	486,000
Total of Cooperative Agreements										972,000	
Grand Total										\$ 37,359,577	
Yes/No Totals For Contracts				25/0	25/0	19/6	24/1	0/25	24/1	25/0	
Yes/No Totals For Cooperative Agreements				1/1	2/0	2/0	³ 2/0	³ 0/2	N/A	N/A	

⁴ Use of previously awarded Cooperative Agreements.

⁵ Cooperative Agreements posted award notice on <http://www.Recovery.gov>.

Department of the Air Force Comments



DEPARTMENT OF THE AIR FORCE
AIR FORCE RESEARCH LABORATORY
WRIGHT-PATTERSON AIR FORCE BASE OHIO


13 JAN 2011

MEMORANDUM FOR ACQUISITION AND CONTRACT MANAGEMENT
DoD OFFICE OF INSPECTOR GENERAL
400 ARMY NAVY DRIVE, 6TH FLOOR
ARLINGTON VA 22202

FROM: AFRL/CA
Building 15, Room 225
1864 Fourth Street
Wright-Patterson AFB OH 45433-7130

SUBJECT: Management Comments for Draft Report of Audit, American Recovery and Reinvestment
Act Projects – Air Force Research Laboratory (Project D2009-D000AB-0710.003)

1. The above draft report addresses your review of the planning, funding, and initial execution of 10 AFRL Near-Term Energy-Efficient Technologies (NTEET) projects within Detachment 1 AFRL/PK. The purpose of the review was to ensure contract execution complied with Recovery Act requirements, Office of Management and Budget (OMB) guidance, and applicable DoD implementing guidance.
2. The report contained one finding with two recommendations. AFRL concurs with intent on both recommendations. Specific management comments are attached. AFRL is in agreement with the DoD IG's intent to provide maximum transparency through the disclosure of contract type to be used and the degree of competition to be employed for ARRA awards. However, current FAR/OMB statute and policy do not support these requirements. Currently, there is no language found in the FAR or OMB policy requiring discussion of contract-type or degree of competition in presolicitation notices for modifications to existing contracts supported by ARRA funds. In addition, the amount of information needed to adequately describe ARRA projects in presolicitation notices is subjective; AFRL determined cognizant contracting officers implemented ARRA guidance pertaining to this area appropriately. Finally, AFRL concurs with the DoD IG's finding that five within-scope modifications were awarded without issuance of presolicitation notices. However, these awards were made in a period of time for which there was a discrepancy in requirements issued by DoD in comparison with the FAR and OMB policy.
3. For questions or concerns regarding these comments, please contact the audit focal point, [REDACTED]. For technical issues, please contact [REDACTED] @ [REDACTED].


JOE SCIABICA, SES
Executive Director

Attachment:
AFRL Management Comments

MANAGEMENT COMMENTS ON DRAFT REPORT
DoD IG PROJECT NO. D2009-D000AB-0170.003
“American Recovery and Reinvestment Act Projects –
Air Force Research Laboratory “

14 Jan 2011

DoD IG Audit Finding Information: Beginning in Apr 2010, the DoD Inspector General (IG) reviewed the planning, funding, and initial execution of ten Air Force Research Laboratory (AFRL) Near Term Energy-Efficient Technologies (NTEET) Program research and development projects, valued at \$38.9 million, within Det 1 AFRL/PK. The purpose of the review was to ensure contract execution complied with Recovery Act requirements, Office of Management and Budget (OMB) guidance, and applicable DoD implementing guidance.

DoD IG Audit Finding, Air Force Near Term Energy-Efficient Technologies Program Implementation Was Not Transparent: *AFRL properly justified and adequately planned and funded 9 out of 10 Air Force NTEET projects. In addition, AFRL used modifications and task orders to previously awarded competitive cost-reimbursement contract and cooperative agreements to award the 10 Air Force NTEET projects. As of March 31, 2010, contracting officials for the 10 Recovery Act NTEET projects awarded 24 contract actions, valued at \$34.8 million, and two cooperative agreements, valued at \$972,000. However, AFRL could have improved Air Force NTEET project contracting and public notification processes. Specifically, AFRL should have:*

- *Posted presolicitation notices on FBO prior to modifying 5 previously competed contracts for 2 NTEET projects,*
- *Provided a more detailed description in the presolicitation notices for 1 NTEET project, and*
- *Informed the public of its intent to use existing cost-reimbursement contracts previously competed to perform all 10 AFRL Recovery Act NTEET projects.*

The AFRL lack of transparency occurred due to contracting officers' inconsistent contract implementation and oversight and the Air Force chain of command's lack of specific DoD Recovery Act implementing procedures. As a result, the Air Force did not achieve the Recovery Act objective of transparency in implementing AFRL NTEET actions.

AFRL Response to Audit Recommendations:

DoD IG Audit Recommendation: *To improve Recovery Act contract compliance, we recommend that the Commander, Air Force Research Laboratory:*

- a. Establish internal policy addressing implementation of Office of Management and Budget policy letter M-09-15, "Updated Implementation Guidance for the American Recovery and*

Deleted

Reinvestment Act of 2009", April 3, 2009, relating to Recovery Act Near Term Energy-Efficient Technologies program for modifications and for posting of presolicitations awarded by Air Force Research Laboratory.

AFRL Management Comments: Concur with Intent, Comments Provided

The first bullet in the finding assumes a requirement for presolicitation notices for modifications existed. This requirement was initiated in DoD guidance, issued 21 Apr 2009. The guidance created a discrepancy as ARRA-related statute required 100% standardization of information reported across the Federal Government. DoD was not authorized to levy an additional requirement not performed by other federal departments nor included in the FAR or OMB policy. DoD subsequently rescinded the requirement on 19 Mar 2010. Between the time the DOD guidance was issued and its rescission, AFRL/PK unsuccessfully attempted to resolve the discrepancy between the DOD guidance and OMB/FAR guidance with higher headquarters. Also during this time, absent clarifying guidance, five AFRL/PK Det 1 within scope modifications were awarded without issuance of presolicitation notice. On 18 May 2009, when it became apparent resolution was not forthcoming, AFRL/PK directed implementation of the DOD guidance.

Revised page 3

AFRL interpreted the NTEET project included in the second bullet within the finding to refer to the four awards comprising the Efficient Small Scale Power (ESSP) Project, based on total dollar value (found on page 24 of the audit report). The titles of the efforts in the presolicitation notices contained sufficient information to adequately describe the projects. The amount of information needed to adequately describe a project is subjective; therefore, we believe AFRL contracting officers implemented the ARRA guidance appropriately.

Revised page 9

AFRL implemented existing guidance appropriately with the exception of the presolicitation notices on modifications which were not synopsized due to a perceived policy conflict. AFRL subsequently began issuing the notices on the modifications until such time as the DoD guidance requiring notices for modifications to existing contracts was rescinded. Since the policy was rescinded there is no need for further policy guidance. Presolicitation and award notices were issued in accordance with existing guidance and policy.

DoD IG Audit Recommendation: *To improve Recovery Act contract compliance, we recommend that the Commander, Air Force Research Laboratory:*

b. Publicly disclose details of the intent to use existing cost-reimbursement contracts previously competed to perform Air Force Laboratory Recovery Act Near Term Energy-Efficient Technologies projects.

Revised and
Renumbered as
Recommendation 1

AFRL Management Comments: Concur with Intent, Comments Provided

AFRL is in agreement with the DoD IG's intent to provide maximum transparency through the disclosure of contract type to be used and the degree of competition to be employed for ARRA awards. However, current FAR/OMB statute and policy does not support these requirements. If this type of transparency is sought for future acquisitions utilizing ARRA funding, AFRL recommends DoD either initiate a FAR case or work through OMB channels for the issuance of an official memorandum to address these requirements.

AFRL interpreted the third bullet within the finding, regarding use of existing contracts and competition status, to refer to presolicitation notices which do not require a discussion of contract type other than fixed price, or of the competitive nature of the contract being used. These notices were required to state, "This notice is provided for informational purposes only", and cite the contract to be used. There was no requirement to indicate in presolicitation notices the contract type, or the competitive nature of the contract being used. However, the presolicitation notices did state an existing contract was being used.

Pages 41-43 of OMB Memo M-09-10 (found on page15 of the audit report) discuss award announcements, rather than presolicitation notices. It describes the requirement for special information to be included only if the effort is not competitively awarded or if it is not fixed price. There is no requirement to report the use of modifications to existing contracts rather than new awards. The AFRL award notices included detailed descriptions of the research and development, as well as statements conveying the intent to use other than fixed price contracts to award the work.

AFRL contracting officers complied with existing policy and regulation regarding competition and contract type disclosure to the public.

3. Other AFRL Comments Regarding Draft Report:

Review of Internal Controls: Page 5 of the report states, We identified an internal control weakness at the AFRL as defined in DoD Instruction 5010.40. Specifically, contracting officers did not convey 1) presolicitation notices, 2) clarity in presolicitation notices, and 3) use of previously competed contracts in Government Web site postings.

Comment: There is not an internal control weakness as described in the preceding narrative. AFRL identified a DoD policy disconnect to higher headquarters which was not resolved until the DoD policy was rescinded. AFRL recognized that clarifying policy was not forthcoming and implemented use of presolicitation notices on modifications to existing contracts until the DoD policy was rescinded. AFRL contracting officers appropriately complied with policy and regulation regarding clarity in presolicitation notices and use of previously competed contracts as previously discussed in this response.



Inspector General Department of Defense